

Sweet Corn Hybrid Tolerance to Mesotrione

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Mesotrione

Pre and post broadleaf herbicide (large crabgrass)

Mode of action: pigment inhibitor

Current labels for field and seed corn

Callisto (mesotrione)

Postemergence rate: 3 oz/a

Camix (mesotrione + s-metolachlor)

Rates: 2 qt/a if < 3% OM, 2.4 qt/a if > 3% OM

Rotational crops: corn, potatoes, soybeans, small grains

Lumax (mesotrione + s-metolachlor + atrazine)

Rates: 2.5 qt/a if < 3% OM, 3 qt/a if > 3% OM

Rotational crops: corn, soybeans, wheat (4.5 mo)

Preplant, Pre, or Post (to 5 inch corn)

Objectives

1. Determine sweet corn hybrid tolerance to preemergence applications of mesotrione
2. Determine if postemergence tolerance can be improved by not using nitrogen additives
3. Determine the mesotrione tolerance in a range of sweet corn hybrids

Experiment 1

2002 Arlington Research Station

5 sweet corn hybrids

2 Pre treatments

Camix and Lumax (no visible symptoms)

5 Post treatments (V3-4)

Callisto 3 oz/a

+ 1% COC + 2.5% 28% UAN (current label)

+ 0.25% NIS + 2.5% 28% UAN

+ 1% COC

+ 1.5 pt/a Atrazine + 1% COC

+ 0.5 oz/a Accent + 1% COC

Chlorosis ratings 8 DAT

<u>Treatment</u>	<u>Rate</u>	<u>GH2547</u>	<u>GH2684</u>	<u>GH7749</u>	<u>Bonus</u>	<u>SSJubilee</u>
<u>Callisto</u>	<u>3 oz/a</u>					
+COC+28%		0	14	0	2	8
+NIS+28%		0	3	0	0	5
+COC		0	0	0	0	0
+Atrazine+COC		0	0	0	0	0
+Accent+COC		0	0	0	0	0

LSD (0.10) = 2

3 oz/a Callisto + COC + 28%



Chlorosis ratings 23 DAT

Treatment	Rate	GH2547	GH2684	GH7749	Bonus	SSJubilee
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Callisto	3 oz/a					
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+COC+28%	0	5	0	0	1
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+NIS+28%	0	0	0	0	2
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+COC	0	0	0	0	0
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+Atrazine+COC	0	0	0	0	0
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+Accent+COC	0	0	0	0	0
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LSD (0.10) = 2

Sweet corn yield

Treatment	Rate	GH2547	GH2684	GH7749	Bonus	SSJubilee
Dual II Mag	1.7 pt/a	4.6	4.1	6.2	7.9	5.5
+atrazine	+1.5 pt/a					
Camix	2.26 qt/a	5.6	6.4	5.9	6.8	6.4
Lumax	2.8 qt/a	6.1	5.3	5.3	7.6	6.4

LSD (0.10) = NS within hybrid

Sweet corn yield

Treatment	Rate	GH2547	GH2684	GH7749	Bonus	SSJubilee
Dual II Mag	1.7 pt/a	4.6	4.1	6.2	7.9	5.5
+atrazine	+1.5 pt/a					
Callisto	3 oz/a					
+COC+28%		5.3	6.9	4.9	8.0	6.5
+NIS+28%		5.4	8.8	4.2	6.4	6.5
+COC		6.8	4.8	5.3	8.2	5.5
+Atrazine+COC		6.6	6.6	5.3	7.6	5.2
+Accent+COC		6.5	5.8	4.4	7.0	5.3

LSD (0.10) = NS within hybrid

Experiment 2

2002 Arlington Research Station

22 sweet corn hybrids

3 Post treatments (V2)

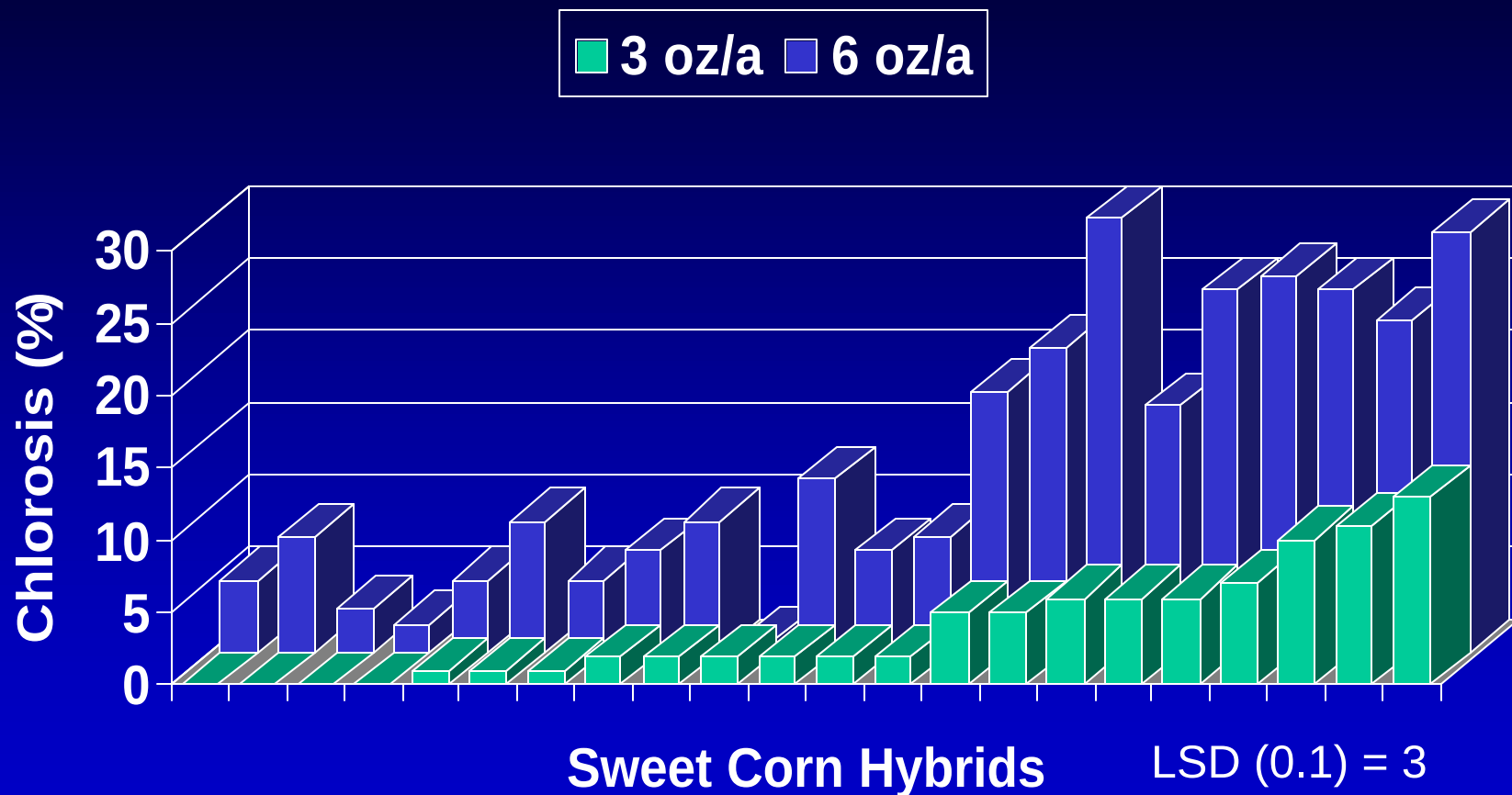
Nontreated

Callisto 3 oz/a + 1% COC

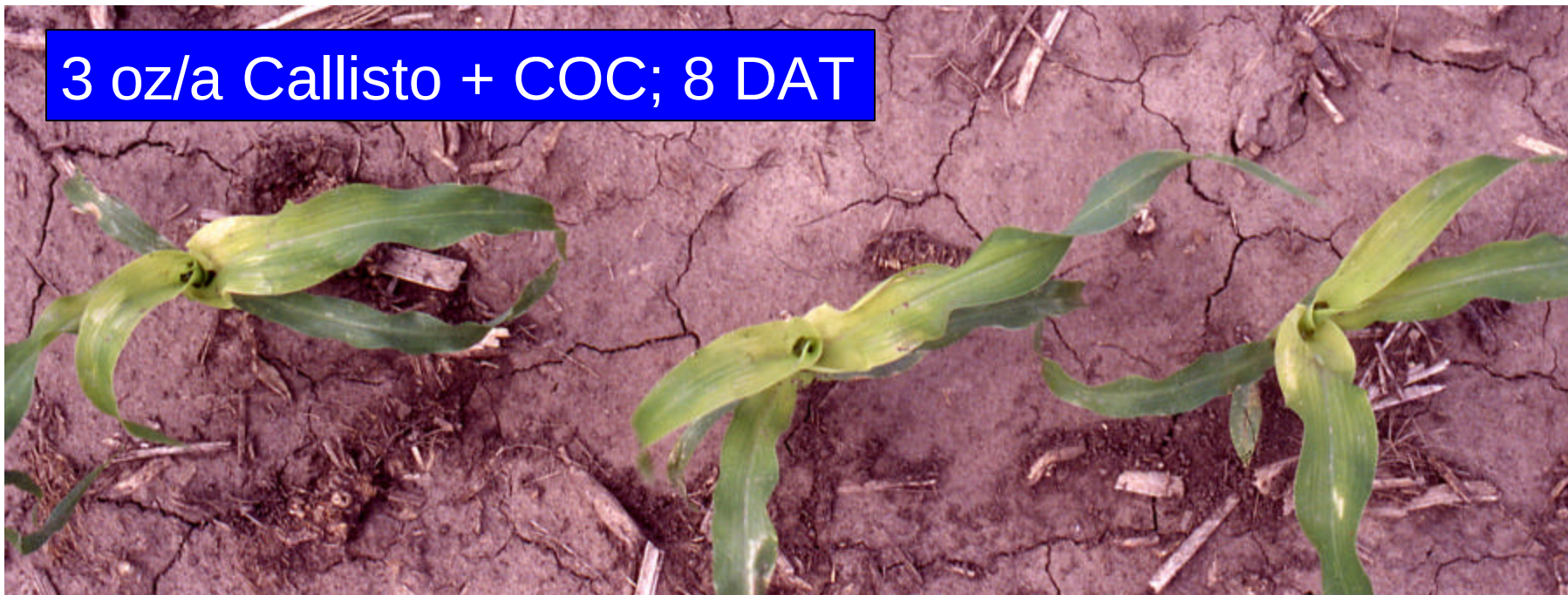
Callisto 6 oz/a + 1% COC

Not harvested for yield

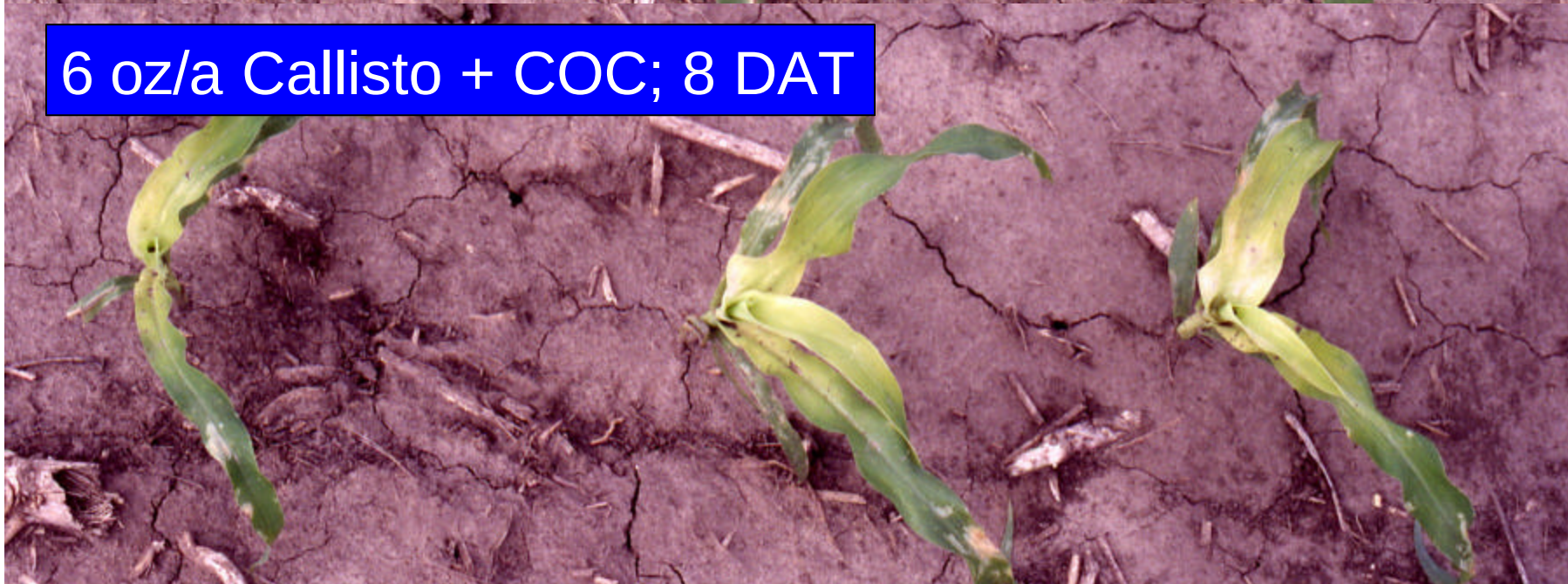
Chlorosis ratings 6 DAT



3 oz/a Callisto + COC; 8 DAT

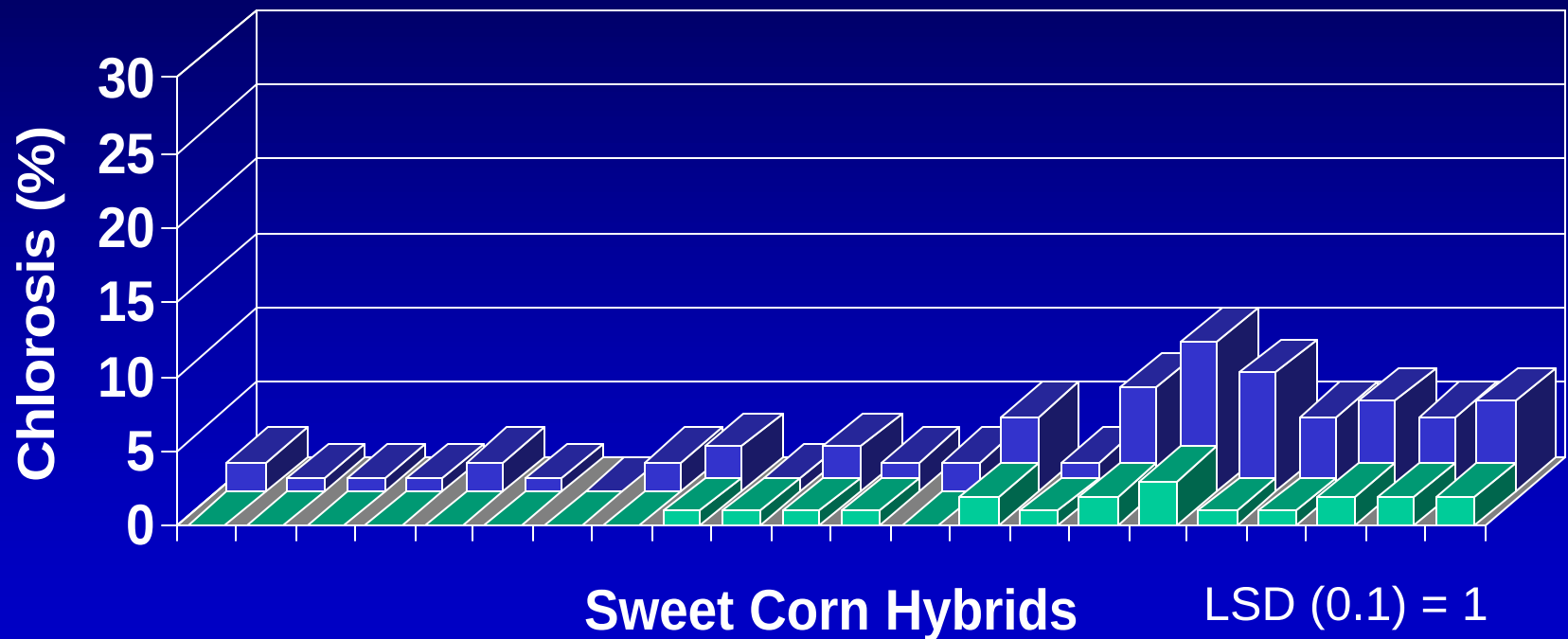


6 oz/a Callisto + COC; 8 DAT



Chlorosis ratings 14 DAT

3 oz/a 6 oz/a



Experiment 1

Preemergence applications of mesotrione did not injure sweet corn

Callisto applied postemergence did not injury sweet corn when mixed with crop oil, atrazine + crop oil, or Accent + crop oil

Experiment 2

3 of 22 hybrids had >10% injury 6 days after Callisto at 3 oz/a, but the injury was insignificant by 14 days

2x rates of Callisto increased injury up to 30%, but injury was 10% or less by 14 days

Conclusions

Mesotrione will control many broadleaf weeds in sweet corn

Preemergence applications have the greatest crop safety

Hybrids will differ in tolerance to postemergence applications

Need to determine if postemergence applications should be prohibited on any specific hybrids